

REMARKS

In the Office Action, the Examiner rejected claims 1-18. By the present Response, Applicants canceled claims 1-18 without prejudice and added new claims 19-41. With regard to new claims 19-41, these claims contain no new subject matter. In summary, claims 19-41 are presently pending. In light of the foregoing amendments and the following remarks, Applicants respectfully request allowance of the pending claims.

As stated above, Applicants added new claims 19-41 by the present Response. Accordingly, Applicants hereby authorize the Commissioner to charge the deposit account listed on the transmittal form attached hereto one hundred and forty dollars (\$140.00). However, if the Commissioner determines that additional fees are due, the Commissioner is hereby authorized to charge any additional fees to the deposit account listed on the transmittal form attached hereto.

Rejections Under 35 U.S.C. § 103

In the Office Action, the Examiner rejected claims 1-18 under 35 U.S.C. §103(a) as unpatentable over the Thomas et al. reference (U.S. Pat. No. 6,356,959) in view of the Ahern et al reference (U.S. Pat. No. 6,388,658). Although Applicants canceled claims 1-18, Applicants, in the interest of expediting prosecution, address the substance of the Examiner's rejection with regard to new claims 19-41. In summary, Applicants respectfully assert that the instant claims are patentable over the cited references, taken alone or in combination, because instant claims recite features not disclosed by the cited references.

The burden of establishing a *prima facie* case of obviousness falls on the Examiner. *Ex parte Wolters and Kuypers*, 214 U.S.P.Q. 735 (PTO Bd. App. 1979). To establish a *prima facie* case, the Examiner must show that the reference combination includes *all* of the claimed elements and must present a convincing line of reason as to why one of ordinary skill in the art would have found the claimed invention to have been obvious in light of the teachings of the references. *See Ex parte Clapp*, 227 U.S.P.Q. 972 (B.P.A.I. 1985).

In contrast to the cited references, the present invention, in one embodiment, comprises an extension transmitter card that includes a graphics controller and that is configured to provide KVM extension. *See Application*, page 2, lines 19-20; page 3, line 24 to page 4, line 5. The exemplary card includes *first and second connectors* that facilitate communications between the card 404 and a motherboard 402 of a host computer. *See id.*, Fig. 4; page 9, lines 10-21. In the exemplary embodiment, the graphics controller, which is located on the card, communicates with the motherboard over one set of connectors. In addition, the KVM extension circuitry, which is also located on the card, communicates over a second set of connectors, independent of the first set. *See id.*, page 4, lines 6-25. Advantageously, the exemplary embodiment of the present invention mitigates the need for additional cables *externally* located with respect to the host to facilitate communications between the host and the extension transmitter circuitry. *See id.*, page 9, lines 10-21. With the foregoing in mind, Applicants respectfully assert that the cited references, taken alone or in combination, do not disclose all of the features recited in the instant claims.

Independent Claim 19 and the Claims Depending Therefrom

Independent claim 19 recites:

An extension transmitter card for use with a host computer,
comprising:
a first circuit board assembly including *extension transmitter
circuitry and graphics controller circuitry*;
a *first connector* disposed on the first circuit board assembly and
electrically in communication with the extension
transmitter circuitry; and
a *second connector* disposed on the first circuit board assembly and
electrically in communication with the graphics controller
circuitry, wherein the first and second connectors are
configured to couple respectively with third and fourth
connectors disposed on a second circuit board assembly of
the host computer system.

(Emphasis added). Applicants respectfully assert that the cited references fail to disclose all of the features recited by the instant claim.

The Examiner concedes that the Thomas reference does not disclose “extension ‘transmitter and receiver’ cards.” See Paper No. 4, page 3. However, the Examiner contends that the Thomas reference teaches “an extension card disposed within the host and being electrically coupled to the motherboard of the host via at least the first connector and the second connector, the card having a graphics controller that interfaces with the second connector independent from the communications that occur on the first connector.” See *id.*, page 3. Applicants respectfully disagree with the Examiner’s assertions regarding the Thomas reference.

In summary, the Thomas reference relates the stacking of two or more PCI-type cards in a single full-height PCI space. See Thomas, column 1, lines 5-7. To facilitate this coupling, the Thomas reference teaches that a PCI bus extender card, which includes PCI bridge circuitry, facilitates a second PCI card to couple to a female PCI connector located on the card. See *id.*, column 6, lines 4-10. Thus, *two PCI cards* communicate with the host via a *single PCI port*.

For example, Fig. 2A of the Thomas reference diagrammatically illustrates a computer system 200A. See *id.*, column 6, lines 15-16; Fig. 2A. The computer system 200A includes a processor 102 and a graphics controller 127. See *id.*, column 4, lines 41-42; column 5, lines 13-16. With respect to the graphics controller 127, the Thomas reference states that “[the] I/O bridge 122 and *graphics controller 127* are each integrated on the *motherboard* along with system controller 112, in order to avoid board-connector signal-crossing interface and thus provide better speed and reliability.” See *id.*, column 5, lines 14-17. (Emphasis added). In other words, the Thomas reference explicitly states that the graphics controller is located on the *motherboard* of the device—not on any card, much less with an extension transmitter card having extension transmitter circuitry as recited in the instant claim.

Additionally, the Thomas reference teaches a PCI card 220 that includes a male PCI connector 229 that inserts into a female PCI socket 221 located on the motherboard 392 of the computer 200A. See Thomas, column 6, lines 48-50; Fig. 2A; Fig 3. Accordingly, the only connection between the motherboard 392 and the PCI card 220A in the Thomas device is via the *single PCI edge connector 229*. See *id.*, Fig. 2A; Fig. 3. Indeed, the Thomas reference focuses

on providing two PCI cards that “can be ‘stacked’ ([i.e.,] plugged into one another, and then plugged into the motherboard 392.” *Id.*, column 6, lines 59-60. (Emphasis added). Thus, the Thomas reference teaches a PCI system that employs a *single connector* that couples to the motherboard 392 of the computer system 200A. *See id.*, Figs 2A-4C (illustrating a multitude of embodiments in which the PCI card presents a *single* PCI connector mating with a *single* PCI socket located on the computer system 200A). Although the Thomas reference discloses additional PCI connectors (e.g., 223) located on the cards, these additional connectors do not engage with the computer system 200A, but rather engage with additional PCI cards (e.g., 240). *See id.*, Figs 2A-4C. Accordingly, the Thomas reference does not disclose a card having *first and second connectors* that couple with the host computer, much less *first and second connectors* that respectively couple with *third and fourth connectors* of a host computer system as recited in the instant claim.

Additionally, the Examiner relied on the Ahern reference to support the rejection. Specifically, the Examiner asserted that the Ahern reference discloses a “a high-end KVM switching system wherein control signals from the corresponding [sic] and adjacent digital card are supplied to the transmitter card and the receiver switch module consists of a receiver card stacked on top of the digital card.” *See* Paper No. 4, page 3. Applicants respectfully disagree with the Examiner’s application of the Ahern reference to the subject matter of the instant application.

The Ahern reference discloses a switching hub 40 that couples one hundred and twenty-eight computers 201-328 to sixteen workstations 1-16, which are *remotely located*. *See* Ahern, column 5, lines 55-59; Fig. 1. To facilitate this interconnectivity, the system of Ahern includes a set of remote computers 201-328 or hosts that produce the video signals locally. *See id.*, column 6, lines 21-26. Once generated, each host system transmits the produced video signals to the switching hub 40, which is external to and remote from the host system. *See id.*, column 6, lines 21-27; Fig. 1B-1C. Between each host and the switching hub 40 reside a communication link 50 and a computer interface module 51, which is located remotely with respect to the host 201. *See id.*, column 6, lines 3-5. Accordingly, the switching mechanism does not disclose *first and*

second connectors that couple with *third and fourth connectors* located on the host as recited in the instant claim. Rather, the Ahern system discloses, at best, a *single* connector located on the host coupled a *single* connector located on the switching hub 40.

Additionally, as discussed above, the Ahern reference discloses that each host produces the video signals locally. See Ahern, column 5, lines 55-59. For example, the digital video card 44 merely “*handles video synchronization signals for the analogue cards.*” *Id.*, column 6, lines 57-59. (Emphasis added). Additionally, the analogue cards 42 and 43 are “*adapted respectively to distribute incoming or outgoing video signals from the switching hub 40.*” See *id.*, column 6, lines 53-57. Accordingly, the Ahern reference teaches that the switching hub 40 and the digital 44 and analogue 42 and 43 cards merely *distribute* signals and are not *graphics controllers* as recited in the instant claim.

With the foregoing in mind, Applicants respectfully assert that the Ahern and Thomas references, taken alone or in combination, do not disclose all of the features recited in the instant claims. Accordingly, Applicants respectfully request that the Examiner allow independent claim 19 and its respective dependent claims 20-24.

Independent Claim 25 and the Claims Depending Therefrom

Independent claim 25 recites:

- An extension transmitter card for use with a host computer, comprising:
 - a first circuit board assembly including *keyboard-video-mouse (KVM) extension circuitry and graphics controller circuitry*;
 - a *first connector* disposed on the first circuit board assembly and electrically in communication with the extension transmitter circuitry, wherein the first connector is configured to couple with a *second connector* disposed on a second circuit board assembly of the host computer;
 - a *third connector* disposed on the first circuit board assembly and electrically in communication with the graphics controller circuitry, wherein the third connector is configured to couple with a *fourth connector* disposed on the second circuit board assembly of the host computer; and

at least one of peripheral component interconnect (PCI) circuitry, peripheral component interconnect extended circuitry (PCI-X), and accelerated graphics port (AGP) circuitry disposed on the first circuit board assembly and in electrical communication with the graphics controller circuitry and the third connector.

(Emphasis added). Again, Applicants respectfully assert that the cited references fail to disclose all of the features recited by the instant claim.

As discussed above, the Thomas reference teaches a computer system 200A that includes a processor 102 and a graphics controller 127. *See id.*, column 4, lines 41-42; column 5, lines 13-16. However, with respect to the graphics controller 127, the Thomas reference states that “[the] I/O bridge 122 and *graphics controller 127* are each integrated on the *motherboard* along with system controller 112, in order to avoid board-connector signal-crossing interface and thus provide better speed and reliability.” *See id.*, column 5, lines 14-17. (Emphasis added). Thus, the Thomas reference explicitly states that the graphics controller is located on the *motherboard* of the device—not on any card, much less an extension transmitter card having extension transmitter circuitry as recited in the instant claim.

Additionally, as also discussed above, the Thomas reference teaches a PCI card 220 that includes a male PCI connector 229 that inserts into a female PCI socket 221 located on the motherboard 392 of the computer 200A. *See Thomas*, column 6, lines 48-50; Fig. 2A; Fig 3. Accordingly, the Thomas reference focuses on providing two PCI cards that “can be ‘*stacked*’ ([i.e.,] plugged into one another, and then plugged into the motherboard 392.” *Id.*, column 6, lines 59-60. (Emphasis added). Thus, the Thomas reference teaches a PCI system that employs a single connector that couples to the motherboard 392 of the computer system 200A. *See id.*, Figs 2A-4C (illustrating a multitude of embodiments in which the PCI card presents a *single* PCI connector mating with a *single* PCI socket located on the computer system 200A). Accordingly, the Thomas reference does not disclose a card having *first and second connectors* that couple with the host computer, let alone *first and second connectors* that respectively couple with *third and fourth connectors* of a host computer system as recited in the instant claim.

Turning to the Ahern reference, this reference discloses a switching hub 40 that couples one hundred twenty-eight computers 201-328 to sixteen workstations 1-16, which are *remotely located*. See Ahern, column 5, lines 55-59; Fig. 1. Between each host 201 and the switching hub 40 reside a communication link 50 and a computer interface module 51, which is located remotely with respect to the host 201. See *id.*, column 6, lines 3-5. Accordingly, the switching mechanism does not disclose *first and second connectors* that couple with *third and fourth connectors* located on the host as recited in the instant claim. Rather, the Ahern system discloses, at best, a *single* connector located on the host coupled a *single* connector located on the switching hub 40.

Additionally, as discussed above, the Ahern reference discloses that each host produces the video signals locally. See Ahern, column 5, lines 55-59. For example, the digital video card 44 merely “*handles* video synchronization signals for the analogue cards.” *Id.*, column 6, lines 57-59. (Emphasis added). Additionally, the analogue cards 42 and 43 are “adapted respectively to *distribute incoming or outgoing video signals* from the switching hub 40.” See *id.*, column 6, lines 53-57. Accordingly, the Ahern reference teaches that the switching hub 40 and the digital 44 and analogue 42 and 43 cards merely *distribute* signals and are not *graphics controllers* as recited in the instant claim.

With the foregoing in mind, Applicants respectfully assert that the Ahern and Thomas references, taken alone or in combination, do not disclose all of the features recited in the instant claims. Accordingly, Applicants respectfully request that the Examiner allow independent claim 25 and its respective dependent claims 26-29.

Independent Claim 30 and the Claims Depending Therefrom

Independent claim 30 recites:

- A computer host, comprising:
 - a first circuit board assembly including a processor and first and second connectors; and
 - a second circuit board assembly including *graphics controller circuitry*, *extension transmitter circuitry*, and *third and fourth connectors*, wherein the third connector is in electrical communication with the first connector and the graphic controller circuitry, and the fourth

connector is in electrical communication with the extension transmitter circuitry and the second connector, wherein the third and fourth connectors communicate independently of one another.

(Emphasis added). Again, Applicants respectfully assert that the cited references fail to disclose all of the features recited by the instant claim.

As discussed above, the Thomas reference teaches a computer system 200A that includes a processor 102 and a graphics controller 127. *See id.*, column 4, lines 41-42; column 5, lines 13-16. However, with respect to the graphics controller 127, the Thomas reference states that “[the] I/O bridge 122 and *graphics controller 127* are each integrated on the *motherboard* along with system controller 112, in order to avoid board-connector signal-crossing interface and thus provide better speed and reliability.” *See id.*, column 5, lines 14-17. (Emphasis added). Thus, the Thomas reference explicitly states that the graphics controller is located on the *motherboard* of the device—not on any card, let alone an extension transmitter card having extension transmitter circuitry as recited in the instant claim.

Additionally, as also discussed above, the Thomas reference teaches a PCI card 220 that includes a male PCI connector 229 that inserts into a female PCI socket 221 located on the motherboard 392 of the computer 200A. *See Thomas*, column 6, lines 48-50; Fig. 2A; Fig 3. Accordingly, the Thomas reference focuses on providing two PCI cards that “can be ‘*stacked*’ ([i.e.,] plugged into one another, and then plugged into the motherboard 392.” *Id.*, column 6, lines 59-60. (Emphasis added). Thus, the Thomas reference teaches a PCI system that employs a single connector that couple to the motherboard 392 of the computer system 200A. *See id.*, Figs 2A-4C (illustrating a multitude of embodiments in which the PCI card presents a *single* PCI connector mating with a *single* PCI socket located on the computer system 200A). Accordingly, the Thomas reference does not disclose a card having *first and second connectors* that couple with the host computer, let alone *first and second connectors* that respectively couple with *third and fourth connectors* of a host computer system as recited in the instant claim.

Turning to the Ahern reference, this reference discloses a switching hub 40 that couples one hundred twenty eight computers 201-328 to sixteen workstations 1-16, which are *remotely located*. See Ahern, column 5, lines 55-59; Fig. 1. Between each host 201 and the switching hub 40 reside a communication link 50 and a computer interface module 51, which is located remotely with respect to the host 201. See *id.*, column 6, lines 3-5. Accordingly, the switching mechanism does not disclose *first and second connectors* that couple with *third and fourth connectors* located on the host as recited in the instant claim. Rather, the Ahern system discloses, at best, a *single* connector located on the host coupled a *single* connector located on the switching hub 40.

Additionally, as discussed above, the Ahern reference discloses that each host produces the video signals locally. See Ahern, column 5, lines 55-59. For example, the digital video card 44 merely “*handles* video synchronization signals for the analogue cards.” *Id.*, column 6, lines 57-59. (Emphasis added). Additionally, the analogue cards 42 and 43 are “adapted respectively to *distribute incoming or outgoing video signals* from the switching hub 40.” See *id.*, column 6, lines 53-57. Accordingly, the Ahern reference teaches that the switching hub 40 and the digital 44 and analogue 42 and 43 cards merely *distribute* signals and are not *graphics controllers* as recited in the instant claim.

With the foregoing in mind, Applicants respectfully assert that the Ahern and Thomas references, taken alone or in combination, do not disclose all of the features recited in the instant claims. Accordingly, Applicants respectfully request that the Examiner allow independent claim 30 and its respective dependent claims 31-35.

Independent Claim 36 and the Claims Depending Therefrom

Independent claim 36 recites:

A computer interface extension configuration, comprising:
a computer host, comprising:
 a first circuit board assembly including a processor and *first and second connectors*; and
 a second circuit board assembly including *graphics controller circuitry, extension transmitter circuitry,*

and third and fourth connectors, wherein the third connector is in electrical communication with the first connector and the graphic controller circuitry, and the fourth connector is in electrical communication with the extension transmitter circuitry and the second connector, wherein the third and fourth connectors communicate independently of one another;

an extension receiver electrically coupled to at least one user interface device; and

a communication pathway configured to facilitate communications between the computer host and the at least one user interface device.

(Emphasis added). Again, Applicants respectfully assert that the cited references fail to disclose all of the features recited by the instant claim.

As discussed above, the Thomas reference teaches a computer system 200A that includes a processor 102 and a graphics controller 127. *See id.*, column 4, lines 41-42; column 5, lines 13-16. However, with respect to the graphics controller 127, the Thomas reference states that “[the] I/O bridge 122 and *graphics controller 127* are each integrated on the *motherboard* along with system controller 112, in order to avoid board-connector signal-crossing interface and thus provide better speed and reliability.” *See id.*, column 5, lines 14-17. (Emphasis added). Thus, the Thomas reference explicitly states that the graphics controller is located on the *motherboard* of the device—not on any card, let alone an extension transmitter card having extension transmitter circuitry as recited in the instant claim.

Additionally, as also discussed above, the Thomas reference teaches a PCI card 220 that includes a male PCI connector 229 that inserts into a female PCI socket 221 located on the motherboard 392 of the computer 200A. *See Thomas*, column 6, lines 48-50; Fig. 2A; Fig 3. Accordingly, the Thomas reference focuses on providing two PCI cards that “can be ‘*stacked*’ ([i.e.,] plugged into one another, and then plugged into the motherboard 392.” *Id.*, column 6, lines 59-60. (Emphasis added). Thus, the Thomas reference teaches a PCI system that employs a

single connector that couple to the motherboard 392 of the computer system 200A. *See id.*, Figs 2A-4C (illustrating a multitude of embodiments in which the PCI card presents a *single* PCI connector mating with a *single* PCI socket located on the computer system 200A). Accordingly, the Thomas reference does not disclose a card having *first and second connectors* that couple with the host computer, let alone *first and second connectors* that respectively couple with *third and fourth connectors* of a host computer system as recited in the instant claim.

Turning to the Ahern reference, this reference discloses a switching hub 40 that couples one hundred and twenty-eight computers 201-328 to sixteen workstations 1-16, which are *remotely located*. *See* Ahern, column 5, lines 55-59; Fig. 1. Between each host 201 and the switching hub 40 reside a communication link 50 and a computer interface module 51, which is located remotely with respect to the host 201. *See id.*, column 6, lines 3-5. Accordingly, the switching mechanism does not disclose *first and second connectors* that couple with *third and fourth connectors* located on the host as recited in the instant claim. Rather, the Ahern system discloses, at best, a *single* connector located on the host coupled a *single* connector located on the switching hub 40.

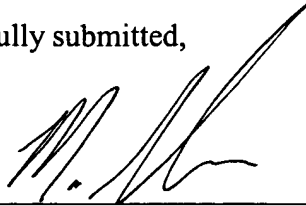
Additionally, as discussed above, the Ahern reference discloses that each host produces the video signals locally. *See* Ahern, column 5, lines 55-59. For example, the digital video card 44 merely “*handles* video synchronization signals for the analogue cards.” *Id.*, column 6, lines 57-59. (Emphasis added). Additionally, the analogue cards 42 and 43 are “adapted respectively to *distribute incoming or outgoing video signals* from the switching hub 40.” *See id.*, column 6, lines 53-57. Accordingly, the Ahern reference teaches that the switching hub 40 and the digital 44 and analogue 42 and 43 cards merely *distribute* signals and are not *graphics controllers* as recited in the instant claim.

With the foregoing in mind, Applicants respectfully assert that the Ahern and Thomas references, taken alone or in combination, do not disclose all of the features recited in the instant claims. Accordingly, Applicants respectfully request that the Examiner allow independent claim 36 and its respective dependent claims 37-41.

Conclusion

In view of the remarks and amendments set forth above, Applicants respectfully request allowance of the pending claims. If the Examiner believes that a telephonic interview will help speed this application toward issuance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,



Date: March, 1 2004

Manish B. Vyas
Reg. No. 54,516
(281) 970-4545

Correspondence Address:

Hewlett-Packard Company
IP Administration
Legal Department, M/S 35
P.O. Box 272400
Fort Collins, CO 80527-2400